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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,699	04/08/2005	Mathias Schwaner	P27657	7747

7055            7590            09/14/2007  
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EXAMINER
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HUG, ERIC J

ART UNIT	PAPER NUMBER
1731	

NOTIFICATION DATE	DELIVERY MODE
09/14/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com  
pto@gbpatent.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/530,699	SCHWANER ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Eric Hug	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 08 April 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 34-73 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 34-73 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 08 April 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 34-36, 40-49 / 50-52, 60, and 64-73 are rejected under 35 U.S.C. 102(b) as being anticipated by Egelhof (CA 2,102,374) or, in the alternative, under 35 U.S.C. 103(a) as being unpatentable over Egelhof.

Egelhof discloses a method of making paper with adjustments to the headbox of a paper machine to provide a web of uniform density and layer height. The pulp density profile and the height profile of the paper pulp suspension are measured in a transverse direction and compared to desired profiles, typically constant over the entire width of the web. The headbox has a plurality of transverse sections, each of which is provided with a web material at a variable flow rate and a variable consistency. Upon deviation of the pulp density profile and/or height profile

of the paper web from the desired profile, the concentration or flow rate of a respective section of the headbox is adjusted. One can also locally change the width of the discharge slit of the headbox.

In Figure 1, headbox 12 displaces the stock suspension onto a screen 14 for dewatering the stock suspension. The stock layer height,  $h_i$  and/or stock density,  $f_i$ , are measured along the width of the web, wherein ' $i$ ' represents a particular location in the transverse direction. Both the layer height and density of the stock suspension may be different at different transverse points. The layer height  $h_i$  and density  $f_i$  can be determined by a plurality of sensors (not shown), each provided at a different transverse section of the screen 14. Fig. 2 illustrates a measured density profile and a height profile of a paper web as compared to a desired profile. To compensate for height profile variations, the flow rate of the impinging stock suspension is adjusted at the headbox or at the wire corresponding to the screen velocity at point S. If the velocity of the screen 14 is known, the flow magnitude of the stock suspension can be determined by multiplying the measured height by the screen velocity. To adjust for density variations, the stock concentration is adjusted at the headbox based on the measured density.

The process of Egelhof appears to read on all features of the method of claim 34. Any differences, none are deemed to exist, are considered to be obvious minor variations. For example, the violation of a predefined limit is deemed to be when the height and/or density profile significantly departs from the desired profile.

The apparatus of Egelhof comprises the structural features of claim 50. Any features of the claims not disclosed by Egelhof pertain to function rather than structure.

Regarding the dependent claims:

Claims 35, 51: Any other type of predefined limits, such as the claimed upper and lower limits, would be obviously defined within a typical process control system. Simple control schemes, such as the PI or PID control disclosed by Egelhof (on page 13), rely on upper and lower set points, therefore would correct the profile when the differences between the measured profiles and the desired profiles in either direction became significantly large.

Claims 36, 52: The sensors are mounted close to the headbox, as seen in Figure 1.

Claims 40, 60, 64: As described above, the profile measurements are linked as signals to a control system.

Claims 41, 65: Either one or more of claimed adjustments a), c), and d) are performed.

Claims 42-45, 66-69: These are obvious means of performing either of the adjustments of claim 41.

Claims 46, 47, 70, 71: These are obvious features of a headbox.

Claims 48, 49, 72, 73: These are obvious types of conventional dewatering elements used on a paper machine.

Claims 36-39, 52-59, 62, and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egelhof (CA 2,102,374) in view of Typpo (US 4,789,431) or Graf (US 6,238,522).

As described above, Egelhof discloses a paper making machine with adjustments to the headbox of a paper machine based on measurements of density and height of the fiber suspension just after the headbox. Egelhof discloses using a plurality of fixed sensors positioned

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along the width of the web and adjacent to the forming wire. Egelhof does not disclose the type of sensors used.

Typo discloses an apparatus for sensing the thickness and basis weight (area density) of a pulp suspension, in zones or slices, on the forming wire of a paper making machine. The apparatus includes an array of ultrasonic transducers mounted in a cross-direction under the forming wire near the headbox of the paper machine. See Figure 1. Measurement information is communicated via links 19a and 19b to a sensor support unit 21 and to a cross-direction communication network line 22. Feedback control of the headbox 10 via controller 15 is based on the measured thickness and basis weight profiles. An actuator, such as a pressure valve on headbox, may be controlled.

Graf discloses an apparatus for determining cross-direction (CD) thickness of a web of paper in a paper-making machine. In Figure 1, forming section 10 has wire 12 that supports web 13 of a fiber material, such as paper, and which allows the movement of web 13 in the direction of arrow 18. The forming section has dewatering devices, such as suction box 16. Mounted to the outside of suction box 16 and adjacent wire 12 is a gamma transceiver assembly 22 (gamma gages). Signals representing the gamma radiation backscattered by the web of paper are processed to provide a thickness measurement. The signals are in communication with processor/controller system 70. The measured thickness data is used to control a particular parameter of the paper machine, such as the discharge of a head box.

Typo and Graf are analogous to Egelhof, in that both measure pulp thickness and density in the forming region of the paper machine, and both utilize a plurality of transverse sensors. At the time of the invention, it would have been obvious to one skilled in the art to use

choose ultrasonic sensors or gamma radiation sensors for the system of Egelhof as taught by Typo or Graf.

Claims 36-39, 52, 57-59: The sensors of Typo (18, Figure 1) and Graf (Figure 2) are stationarily mounted close to the headbox, at right angles to the machine running direction, and at a plurality of points in the transverse direction. The sensors are moved into close proximity with the bottom of the wire. One skilled in the art would recognize moving the sensors as close to the wire as possible to increase their sensitivity.

Claims 53-56: See column 2, lines 20-35 which describes the structural features of the measuring sensors.

Claims 62-63: The measuring sensors of Typo are ultrasound units. The measuring sensors of Graf are gamma gages.

### ***Drawings***

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the present versions contain illegible reference numbers and fuzzy lines. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Salminen (US 6,855,230) discloses measurement and control of a thickness profile in a twin-wire paper machine.

Begemann (US 6,179,964) discloses measurement and control of a cross-machine direction profile at least one web quality feature in a paper making process. Thickness and grammage profiles are disclosed.

Ostermayer (US 5,492,601) discloses measuring pulp thickness via laser reflection.

Munch (US 5,298,122) discloses a traversing measuring device for measuring the thickness profile of a web on a moving wire

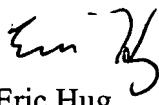
Schoffmann (US 4,368,102) discloses an apparatus for regulating the density of a fibrous suspension on the moving wire of a machine for making a fibrous web. A quantity of water is discharged towards the wire, thereby thinning or displacing the suspension on the wire.

Lehtinen (US 4,574,624 and US 3,442,756) discloses measuring pulp thickness via ultrasound.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Hug whose telephone number is 571 272-1192.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Eric Hug  
Primary Examiner